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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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James R. Peterson

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EXAMINER

WANG, JIN CHENG

ART UNIT

PAPER NUMBER

2628

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/823,935	<b>Applicant(s)</b> PETERSON ET AL.	
	<b>Examiner</b> JIN-CHENG WANG	<b>Art Unit</b> 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 23, 25-32 and 98-113 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23, 25-32 and 98-113 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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## **DETAILED ACTION**

### ***Response to Amendment***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/12/2009 has been entered. Claims 23, and 25-28 have been amended. Claims 98-113 have been newly added. Claims 1-22, 24, and 33-97 have been canceled. Claims 23, 25-32 and 98-113 are pending in the application.

### ***Response to Arguments***

Applicant's arguments, filed August 12, 2009 have been considered, but are moot in view of the new ground(s) of rejection set forth in the present Office Action.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 23, 25-31, 98-100, and 102-113 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deering U.S. Patent No. 6,664,955 (hereinafter Deering).

Re Claims 23, 27, 106 and 109:

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Deering teaches in Figs. 5A and 23 a method for calculating values for pixels of an image in a graphics processing system comprising anti-aliasing circuitry and a memory, wherein the pixels of the image are arranged in rows and columns parallel to first and second perpendicular axes, respectively (*Deering at Fig. 23 teaches that the pixels are arranged in rows and columns parallel to the horizontal axis and vertical axis, see column 4, lines 20-40 wherein the samples are calculated to generate output pixels*), the method comprising:

Calculating, in the anti-aliasing circuitry, sample values for the pixels of the image in accordance with a plurality of sampling rates (*see Fig. 23, the first two pixels in the first row group being repeated for at least one following group of the same number of pixels in the same row. Although the first pixel has more than one sample shown, the first pixel--the interpolated pixel within the white square---is calculated based on a sampling pattern of only one center sample of the pixel while other samples within the same white square area are ignored or not rendered, see column 32, lines 13-16 and column 32, lines 30-35. Since the other samples are not calculated, they are not part of the calculated samples for the white pixels. Thus the white pixels have the different effective sampling rates than the shaded pixels. The second pixel---the shaded pixel within the crosshatched square--- is calculated based on 13 samples in accordance with the teaching at column 30, lines 30-50*), wherein:

A sampling rate is defined by the number of samples per pixel used to calculate sample values for each pixel having at least one sample (Fig. 23), and

The sampling rates for at least three consecutive pixels in one of the same row and the same column of pixels alternate per pixel between at least first and second sampling rates (Fig. 23);

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Calculating, in the anti-aliasing circuitry, values for the pixels of the image from respective calculated sample values (Fig. 23); and

Storing, in the memory, the values for the pixels as graphics data for the image for use in displaying an anti-aliased image (Fig. 23).

Claim 25:

Deering further teaches the claim limitation that the sampling rate is constant for the pixels arranged along any of the rows and varies among the plurality of sampling rates for the pixels arranged along any of the columns (see Deering Fig. 5A and 23; column 14, lines 64-67; column 15, lines 1-10 wherein the exemplary Fig. 5A's sampling patterns for the 3\*3 pixels can be repeated along any of the rows in the horizontal direction and varies among the plural sampling rates for the pixels along the vertical direction).

Claim 26:

Deering further teaches that the first and second sampling rates alternate per pixel for consecutive pixels in any of the columns (see Deering Fig. 5A and 23; column 14, lines 64-67; column 15, lines 1-10 wherein the exemplary sampling rates of the 3\*3 pixels can be repeated and thus the first and second sampling rates alternate per pixel for consecutive pixels in any of the columns).

Claim 28:

Deering further discloses the claimed limitation the first and second sampling rates alternating every row of pixels (*Deering discloses in Fig. 23 the alternating first and second sampling rates along every row of pixels. Deering teaches at Fig. 5A the variable sampling rates*

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for pixels along the vertical direction wherein the sampling rate differing for at least two pixels of the image. See also Fig. 23 wherein the first sampling pattern corresponds to the pattern for the interpolated pixels and the second sampling pattern corresponds to the pattern for the filtered pixels).

Re Claim 29:

Deering further discloses in Fig. 5A and Fig. 23 that the first sampling rate is two samples per pixel and the second sampling rate is one sample per pixel.

Re Claim 30:

Deering further discloses in Fig. 5A and Fig. 23 the first sampling rate is two samples per pixel and the second sampling rate is one sample per pixel, the two sample locations per pixel for the first sampling rate arranged within a pixel along a line forming an acute angle with respect to either the first or second axes.

Re Claim 31:

Deering further discloses in Fig. 5A and Fig. 23 that the first sampling rate is two samples per pixel and the second sampling rate is one sample per pixel, the two samples per pixel for the first sampling rate arranged within a pixel substantially along and on opposite sides of a line parallel to either the first or second axes that divides the pixel in two, the axis to which the line is parallel alternating per consecutive pixel arranged along a line parallel to the first axis.

Re Claims 98, 107 and 110:

Deering further teaches that the first sampling rate is two samples per pixel and the second sample is one sample per pixel (see Deering Fig. 5A and 23; column 14, lines 64-67; column 15, lines 1-10 wherein the sampling patterns of Fig. 5A can be repeated).

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Re Claims 99, 108 and 111:

Deering further teaches in Figs. 5A and 23 that the first sampling rate is two samples per pixel and the second sampling rate is one sample per pixel, and wherein the two sample locations per pixel for the first sampling rate is arranged within a pixel along a line forming an acute angle with respect to either the first or second axes.

Re Claim 100:

Deering further teaches the claim limitation of calculating at least one sample value for a first pixel of the at least three consecutive pixels based on the first sampling rate and a first sampling pattern; calculating at least one sample value for a second pixel of the at least three consecutive pixels based on the second sampling rate; and calculating at least one sample value for a third pixel of the at least three consecutive pixels based on the first sampling rate and a second sampling pattern (*see Deering Fig. 5A and 23; column 14, lines 64-67; column 15, lines 1-10*).

Re Claim 102:

Deering further teaches in Fig. 23 that the at least three consecutive pixels are located in a first column, and wherein at least three consecutive pixels in a second column of pixels alternate per pixel between at least the first sampling rate and a second sampling rate.

Re Claim 103:

Deering further teaches in Fig. 23 that the at least three consecutive pixels are located in a first row, and wherein at least three consecutive pixels in a second row of pixels alternate per pixel between at least the first sampling rate and a second sampling rate.

Re Claims 104 and 112:

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Deering further teaches in Fig. 23 that the sampling rates alternate between the first sampling rate and the second sampling rate at a constant frequency along the any one given line parallel to the second axis.

Re Claims 105 and 113:

Deering further teaches in Fig. 23 that the sampling rates alternate per pixel between the first sampling rate and second sampling rate.

Claims 32 and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deering U.S. Patent No. 6,664,955 (hereinafter Deering) in view of Leather et al. US Patent No. 6,999,100 (hereinafter Leather).

Deering is silent to the claim limitation that the second sampling pattern is rotated ninety degrees relative to the first sampling pattern. However, Leather teaches the claim limitation that the second sampling pattern is rotated ninety degrees relative to the first sampling pattern (Leather Figs. 7-9).

It would have been obvious to one of ordinary skill in the art to have incorporated the Leather's sampling patterns rotated 90 degrees into the Deering's invention because Deering teaches alternating the sampling patterns. Having the combined teaching, one of the ordinary skill in the art would have realized that the alternating sampling patterns can be rotated 90 degrees. One having the ordinary skill in the art would have been motivated to do this because it would have provided alternating sampling patterns for pixels (Leather Figs. 7-9). It is old and well known that the sampling patterns for consecutive pixels can be rotated 90 degrees according to Leather's alternating sampling patterns for consecutive pixels. Thus, incorporating the Leather's teaching that the sampling pattern can be rotated 90 degrees, one of the ordinary skill in



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the art clearly know how to rotate the sample locations for pixels along a row or a column to provide the claim invention because Leather teaches alternating sampling patterns with a rotation of 90 degree of sampling patterns for consecutive pixels.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JIN-CHENG WANG whose telephone number is (571)272-7665. The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jin-Cheng Wang/

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Primary Examiner, Art Unit 2628